UNIVERSITY OF BAHRAIN
COLLEGE OF INFORMATION TECHNOLOGY
DEPARTMENT OF INFORMATION SYSTEMS

DB DEVELOPMENT - ITBIS 373
DB SYSTEMS IMPLEMENTATION - ITIS 411
SEMESTER 1, 2014/2015

ANSWERS KEYS OF THE MIDTERM TEST

Tue, 28th Oct 2014, 3:00 PM **Duration: 90 Minutes**

Student Name	
Student ID	
Section	
Serial #	

Part	Question Total Mark	Marks Obtained
Part I: *T/F, MCQ*	**5**	
Part II: *SQL and Short Answers*	**15**	
Total	**20**	

PART I: TRUE/FALSE AND MULTIPLE CHOICE QUESTIONS [5 MARKS]

1. Data Manipulation Language (DML) commands must implicitly be saved, to make the new data visible to other DB users.
   a. True **b. False**

2. `COUNT(field_name)` tallies only those rows that contain a value; it ignores all null values.
   a. **True** b. False

3. The values of columns of `DATE` or `INTERVAL` data type cannot be negative.
   a. True **b. False**

4. A column with a `UNIQUE` constraint cannot take the value `NULL`.
   a. True **b. False**

5. When modifying a DB table, which of the following is a restricted action?
   a. Renaming a table
   b. Deleting a field
   c. Changing a data type of a column
   d. Increasing the maximum size value of a field

6. LPAD('ITIS', 6, '+') would produce:
   a. `ITIS++`
   b. `++++++ITIS`
   c. `++++++`
   d. `++ITIS`

7. What will happen when the following query is executed:

```
UPDATE student
SET s_class='SR';
```

   a. All records in the `student` table will be updated.
   b. No records in the `student` table will be updated
   c. An error will occur
   d. The first record in the student table will be updated

8. What is the difference between deleting all records from a table and truncating the table?
   a. Deleting is faster
   b. Truncating does not save roll back information while delete does
   c. Only a DBA can truncate, anyone can delete
   d. Delete does not save roll back information while truncate does

9. When creating DB tables that contain foreign key references to other tables, you must:

   a. first create the table in which the primary key is a foreign key
   b. first create the table in which the foreign key is a primary key
   c. first remove all integrity constraints
   d. it does not matter; you are free to create any table with no specific order

10. How does Oracle keep sequence information unique for each user?
   a. Only one user has access to a sequence
   b. Using user session
   c. Each user has a private copy of the sequence
   d. It is not always unique - there is a possibility that two users may receive the same sequence number

PART II: SHORT ANSWERS & SQL QUESTIONS [15 MARKS]

Consider the following tables of a relational database:

Client

clientNo	fName	lName	telNo
CR76	John	Kay	0207-774-5632
CR56	Aline	Stewart	0141-848-1825
CR74	Mike	Ritchie	01475-392178
CR62	Mary	Tregear	01224-196720

Property

propertyNo	type	rooms	rent
PA14	House	6	650
PL94	Flat	4	400
PG4	Flat	3	350
PG36	Flat	3	375
PG21	House	5	600
PG16	Flat	4	450

Viewing

clientNo	propertyNo	viewDate	comment
CR56	PA14	24-May-04	too small
CR76	PG4	20-Apr-04	too remote
CR56	PG4	26-May-04	no garage
CR62	PA14	14-May-04	no dining room
CR56	PG36	28-Apr-04	

Write SQL commands to answer the following questions (11, 12, 13, 14, and 15):

11. Create the `Client` table

[1 mark]

```
CREATE TABLE client (
      clientNo VARCHAR2(4),
      fName VARCHAR2(20),
      lName VARCHAR2(20),
      teNo VARCHAR2(13),
      CONSTRAINT client_clientNo_pk PRIMARY KEY (clientNo));
```

12. Create the `Viewing` table.

[1.5 mark]

```
CREATE TABLE viewing (
      clientNo VARCHAR2(4),
      propertyNo VARCHAR2(4),
      viewDate DATE,
      comment VARCHAR2(40),
      CONSTRAINT view_clientNo_propNo_pk PRIMARY KEY
        (clientNo, propertyNo),
      CONSTRAINT view_clientNo_fk FOREIGN KEY (clientNo)
        REFERENCES client(clientNo),
      CONSTRAINT view_propertyNo_fk FOREIGN KEY (propertyNo)
        REFERENCES property(propertyNo));
```

13. Create the `Property` table.

[1 mark]

```
CREATE TABLE property (
      propertyNo VARCHAR2(4),
      type VARCHAR2(5),
      rooms number(2),
      rent number(3),
      CONSTRAINT prop_propertyNo_pk PRIMARY KEY (propertyNo));
```

14. Retrieve all the `properties` along with their respective `comment` that the client with number `CR56` has viewed.

[0.5 mark]

```
SELECT propertyNo, comment FROM viewing
  WHERE clientNo ='CR56';
```

15. The number of properties viewed after the date of `14-May-04`:

[1 mark]

```
SELECT COUNT(*) FROM viewing
  WHERE viewDate > TO_DATE('14-May-04','DD-MMM-YY');
```

16. Do the following:

(a) Declare a column `f_name` of length 10 characters that supports Unicode.

[0.5 mark]

```
f_name NVARCHAR2(10)
```
OR
```
f_name NCHAR2(10)
```

(b) Declare a column `price` that can store Bahraini Dinar/Fils up to 999 BD.

[1 mark]

```
price NUMBER(6, 3)
```

(c) Declare a column `time_col` that stores the date and time including the fractional seconds with 1 digit precession.

[1 mark]

```
time_col TIMESTAMP (1)
```

(d) Delete a table `abc` with all the foreign key constraints that reference the table.

[1 mark]

```
DROP TABLE abc
CASCADE CONSTRAINTS;
```

(e) Add 3 years and 7 months to 28th Oct 2014 using `TO_YMINTERVAL`.

[1 mark]

```
TO_DATE('10/28/2014', 'MM/DD/YYYY') + TO_YMINTERVAL('3-7')
```

(f) Write a command to discard any uncommitted changes.

[0.5 mark]

```
ROLLBACK;
```

(g) Create a sequence `my_seq` such that it has the following values:
201400, 201410, 201420, 201430, …
The sequence should produce 21 numbers only.

[1 mark]

```
CREATE SEQUENCE my_seq
INCREMENT BY 10
START WITH 201400;
```

(h) Use the `my_seq` you created in (g) as a surrogate key in the `abc` table.

[1 mark]

```
INSERT INTO abc (abc_id)
      VALUES(my_seq.NEXTVAL);
```

(i) Grant `saeed` a privilege such that he can modify an object's structure and delete the object within the table `student`.

[1 mark]

```
GRANT DROP, ALTER
ON student
TO saeed;
```

(j) Why is the following SQL statement incorrect?

[1 mark]

```
SELECT c_code, MAX(mark) FROM Grades
  WHERE term =2;
```

(**Note:** Suppose that `Grades` table defines columns `c_code`, `mark`, and `term`)

Possible answers:

1. There is attempt to mix single-row results and group function results in the same query output, OR
2. GROUP BY clause is omitted

17. When you rename a table:

a) What happens to the integrity constraints, indexes, and privilege that referenced the old table?

[0.5 mark]

DBMS automatically transfers the first three to the new table

b) What happens to the objects that referenced the old table such as views and stored procedures and functions?

[0.5 mark]

When renaming a table, objects that referenced the old table, such as views, and stored procedures and functions become invalid.